REMARKS

In reply to the Office Action dated September 2, 2004, reconsideration is respectfully requested. Claims 19, 22, 61, and 63-65 are currently under examination in the Application. The remarks herein are not to be construed as acquiescence to the stated grounds for objection/rejection and are made without prejudice to prosecution of any subject matter in a related divisional, continuation and/or continuation-in-part application.

Prior Rejections Maintained

Rejection Under 35. U.S.C. § 103

Claims 19, 22, 61, and 63 remain rejected as allegedly being obvious under 35 U.S.C. § 103 over Billing Mendel *et al.*, in view of Hauser *et al.* and Ladd *et al.* More particularly, the Examiner asserts that the discovery of a previously unappreciated property of a prior art composition does not render an old composition patentably new to the discoverer. The Examiner further states that products of identical chemical composition cannot have mutually exclusive properties and, therefore, if the prior art teaches the identical chemical structure, the properties applicants discloses and/or claims are necessarily present. The Examiner further alleges that since Billing-Mendel *et al.* teach a polypeptide sharing 100% amino acid identity with residues 299-529 of SEQ ID NO: 113, the polypeptide taught by Billing-Mendel *et al.* comprises any and all properties instantly claimed.

According to the Examiner, Ladd *et al.* teach immunogenic peptide compositions and that the peptides can be formulated with adjuvants, including saponin. Also according to the Examiner, Hauser *et al.* teach that an adjuvant, 3-O-deaycylated MPL, is a potent inducer of Th1 cells. The Examiner concludes that the skilled artisan would have been motivated and had a reasonable expectation of success to combine a saponin or MPL with the polypeptide taught by Billing Mendel *et al.*, in order to increase the immunogenicity of the polypeptide.

Applicants respectfully traverse this rejection.

Billing-Mendel *et al.* describe a polypeptide sharing identity with residues 299-529 of SEQ ID NO: 113. Billing-Mendel *et al.* further describe antibodies specific for their disclosed sequence and methods for making such antibodies. Billing-Mendel *et al.* do not,

however, offer any teaching or suggestion whatsoever that their disclosed polypeptide is a human T-cell immunogen capable of stimulating a cytotoxic T-cell response.

Hauser *et al.* teach an adjuvant, small monophosphoryl lipid A (MPL), which preferentially induces a Type I response, and is thus particularly useful for enhancing a T-cell immune response. Hauser *et al.* do not teach or suggest combining a described adjuvant with a polypeptide bearing any structural relationship to SEQ ID NO: 113, much less a polypeptide selected so as to minimally comprise the specific residues 367-375 of SEQ ID NO: 113.

Ladd *et al.* teach certain immunogenic peptide compositions, and that the peptides can be formulated with adjuvants, including saponins. Ladd *et al.*, however, do not teach or suggest combining a disclosed adjuvant with any polypeptide of SEQ ID NO: 113, much less a polypeptide minimally comprising residues 367-375 of SEQ ID NO: 113.

Applicants acknowledge that the discovery of a previously unappreciated property of a prior art composition does not render an old composition patentably new to the discoverer. However, the compositions as currently claimed are not prior art compositions, or they would presumably stand rejected under § 102, not § 103. Nowhere in the prior art is any suggestion found to combine a polypeptide as currently claimed with an adjuvant as currently claimed. SEQ ID NO: 113 was first demonstrated by Applicants, not by the prior art, to be capable of eliciting an effective human cytotoxic T-cell response specific for SEQ ID NO: 113. As also described in Applicants' specification as filed, an adjuvant which induces a predominantly Th1-type response favors a cellular T-cell based immune response relative to a humoral-based immune response. Thus, a skilled artisan would understand that the polypeptides as claimed are advantageous for eliciting an effective human T-cell response, and that is why the polypeptides are described and claimed in the context of compositions containing an adjuvant which favors a T-cell immune response. Any motivation to combine a polypeptide of SEQ ID NO: 113 with an adjuvant which induces a predominantly Th1-type response was simply lacking prior to Applicants' demonstration that SEQ ID NO: 113 can stimulate human T-cells. In other words, a skilled artisan would find motivation to select an adjuvant which induces an immune response predominantly of the Th1-type when the skilled artisan first knows that a polypeptide is indeed a

T-cell immunogen, and desires to enhance the T-cell response elicited by the polypeptide. The prior art fails to provide any such teaching.

At best, the Examiner's rejection based on the cited combination of references is predicated on an impermissible obvious-to-try standard:

> Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, inter alia, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)

Applicants submit that the cited combination of references is deficient in both regards. First, the prior art does not teach or suggest to the skilled artisan that a polypeptide as claimed should be combined with an adjuvant that induces a predominantly Th1-type response. Rather, Billing-Mendel *et al.* describe a polypeptide and the generation of antibodies to the polypeptide. Billing-Mendel *et al.* do not teach or suggest that the described polypeptide is capable of stimulating a human cytotoxic T-cell response. The secondary references describe the use of certain adjuvants in combination with certain polypeptides, but such description certainly does not motivate the skilled artisan to employ a polypeptide of Billing-Mendel *et al.* in combination with an adjuvant that favors a T-cell immune response, when neither Billing-Mendel *et al.*, Hauser *et al.* or Ladd *et al.* offer anything of substance that would lead the skilled artisan to expect that a polypeptide of Billing-Mendel *et al.* is an effective human T-cell immunogen. Rather, only upon having knowledge of the T-cell immunogenicity of a polypeptide of Billing-Mendel *et al.* would the skilled artisan seek to make an immunogenic composition as claimed, and have a reasonable expectation of success of doing so. Therefore, it is the instant disclosure, and not the cited references of Billing-Mendel *et al.*, Hauser *et al.* and/or Ladd *et al.*, that provide the requisite motivation and reasonable expectation of success in practicing the currently claimed invention. Accordingly, the claimed invention is not obvious over the cited art.

Reconsideration of the Examiner's rejection is respectfully requested.

Double PatentingRejections

Claims 19, 61, and 63 remain rejected under the judicially created doctrine of obviousness-type double patenting over claims 2-5 of U.S. Patent No. 6,329,505, in view of Hauser *et al.* and Ladd *et al.* According to the Examiner, claims 2-5 of U.S. Patent No. 6,329,505 recite that the polypeptide comprises at least a portion of sequence having at least 90 or 95% identity to the entirety of SEQ ID NO: 113, and claims 3-4 of the patent recite a polypeptide "comprising" and, therefore, the claims encompass the entirety of SEQ ID NO: 113. Without acquiescing to the stated grounds for rejection, Applicants submit herewith a Terminal Disclaimer over U.S. Patent No. 6,329,505.

Claims 19, 22, 61, and 63 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 1, 4-7, and 13 of U.S. Patent No. 6,261,562 in view of Hauser *et al.* and Ladd *et al.* According to the Examiner, the claims in U.S. Patent No. 6,261,562 recite a polypeptide comprising SEQ ID NO: 113, which is identical to SEQ ID NO: 113, and therefore is a polypeptide comprising residues 367-375 of SEQ ID NO: 113, and would have the instantly claimed properties. Without acquiescing to the stated grounds for rejection, Applicants submit herewith a Terminal Disclaimer over U.S. Patent No. 6,261,562.

New Rejections

Rejection Under 35 U.S.C. § 112, second paragraph

Claim 61 stands rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as their invention. According to the Examiner, claim 61 is indefinite for reciting "predominantly Th1-type immune response", because the specification does not provide a standard for ascertaining the requisite degree or endpoint, and one of ordinary skill in the art would not reasonably be apprised of the metes and bounds of the present invention.

Applicants respectfully traverse this rejection.

The specification as filed clearly describes that within the claimed immunogenic compositions of the invention, an adjuvant is selected to induce an immune response predominantly of the Th1-type (*e.g.*, page 106, lines 1-12). High levels of Th1-type cytokines (*e.g.*, IFN-γ, TNFα, IL-2 and IL-12) tend to favor the induction of cell-mediated immune

responses to an administered antigen. In contrast, high levels of Th2-type cytokines (*e.g.*, IL-4, IL-5, IL-6 and IL-10) tend to favor the induction of humoral immune responses. The specification further discloses that an immune response is predominantly of the Th1-type *when the level of Th1-type cytokines increase to a greater extent than the level of Th2-type cytokines* (*e.g.*, page 106, lines 1-12). Finally, the specification provides illustrative assays for evaluating Th1 and/or Th2 cytokines. In view of this disclosure by Applicants, a skilled artisan would have no difficulty understanding the metes and bound of the phrase "an adjuvant which induces a predominantly Th1-type immune response" as an adjuvant which induces an immune response where the level of Th1-type cytokines are increased to a greater extent than the level of Th2-type cytokines, as specifically described in the application as originally filed.

Reconsideration of this rejection is respectfully requested.

Rejection Under 35 U.S.C. § 103(a)

Claims 64-65 stand rejected as allegedly being obvious under 35 U.S.C. § 103 over Billing Mendel *et al.* (U.S. Patent No. 6,130,043, 5/2/97), in view of Mincheff *et al.* (U.S. Patent No. 6,387,888 B1, 9/30/98), and Salgaller *et al.* (Prostate, 35(2):144-151, May 1998). Billing-Mendel *et al.* has been discussed above. According to the Examiner, Mincheff *et al.* teach antigen-presenting cells expressing a prostate cancer antigen following the introduction of DNA or RNA encoding said prostate cancer antigen. Also, according to the Examiner, Salgaller *et al.* teach the administration of GM-CSF as a systemic adjuvant with dendritic cells pulsed with prosate cancer peptides. The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to have produced an immunogenic composition as claimed.

Applicants respectfully traverse this rejection.

Applicants submit that there is nothing in Billing-Mendel, Mincheff *et al.* and/or Salgaller *et al.* that offers any teaching or suggestion that an antigen presenting cell that expresses a polypeptide, wherein the polypeptide comprises the T-cell epitope of amino acid residues 367-375 of SEQ ID NO: 113; and wherein the polypeptide stimulates a human cytotoxic T lymphocyte response specific for SEQ ID NO: 113, should be combined with an adjuvant which induces a predominantly Th1-type immune response. Furthermore, one skilled in the art

would not be motivated to make such a composition without knowledge that the polypeptide is capable of eliciting an effective human T-cell response when expressed in an antigen-presenting cell. Again, such disclosure is provided only by Applicants' disclosure. Accordingly, any alleged motivation to make the currently claimed compositions is impermissibly founded on Applicants' own disclosure, not on the prior art, and amounts to an invitation to experiment in the absence of a predictable expectation of success.

Reconsideration of the Examiner's rejection is respectfully requested.

The Commissioner is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now believed to be in condition for allowance. Favorable consideration is respectfully requested.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC

51,909 for

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JEH:tt

Enclosures:

Postcard
Terminal Disclaimer over Patent No. 6,329,505
Terminal Disclaimer over Patent No. 6,261,562

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